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UNITED STATES DEPARTMENT OF AGRICULTURE
Radio Service
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PROGRAM FARM FLASHES (Poultry) RELEASE Wed. Dec. 1.

ANNOUNCEMENT: One reason why Art Short, -- our Wednesday noon farm-flash chicken man, -- was chosen to manage the Miller Poultry Farm, is because he's a far-sighted chap. He's looking into the future of the Miller Farm today, as he goes over the place with a friend and advisor. Who's the advisor, you ask? Well, we'll give you one guess. Right. It IS County Agent Robbins, who speaks for the U. S. Department of Agriculture in Uncle Sam's farm flash radio program.

* * * *

Mr. Short -- Mr. Miller, who owns this place, wants to branch out a bit next spring, Robbins. He wants me to look into the matter and see how it can be wisely done. What I'd like to know is how many hens one man can manage and at the same time give the birds the best of care.

County Agent Robbins -- Depends on the man, -- and whether the man's trap-nesting or not. Trap-nesting takes considerable time, you know. If he isn't trap-nesting, a good man like you ought to be able to handle about 1,500 layers. That's providing his houses are conveniently arranged and his work well organized. I'd suggest that you write the poultry extension specialists in your State for full information on local conditions.

S. -- Well, Robbins, I'm going to map the thing all out on paper some winter evening. If I have to do the work, believe me, I'm going to see that there's not too much of it. Let's stop at this pen for a minute.

R. -- Those pullets look rather small. What's the matter with them?

S. -- Never have developed right. Slow coming into the lay. Not sure what the trouble is. Would it help if I fed them more mash?

R. -- I think it would. Those pullets that haven't filled out well by now should be forced for egg production. This pen should get about equal parts of mash and scratch grain, I should say. Might even be well to feed about 60 per cent mash. If I were you, I'd keep mash in a hopper before them all the time and also feed a light supply of moist mash every day. Mix it with milk. Then give them all the scratch feed they'll clean up.

S. -- But will the pullets get the exercise they need, if their feed is supplied in hoppers where it's so easy to get?

R. -- Feed the scratch grain in the litter and bury it deep. But

keep the litter clean.

S. -- Wish you'd tell me if there's any proof that warming the drinking water in winter increases the egg yield. I'm trying it out in one pen.

R. -- The U. S. Department of Agriculture has no records of experiments where the drinking water is kept slightly warm during the winter. But they do say that there's no question about the necessity of keeping the water from freezing. Whether it would pay to heat the water is questionable.

S. -- You'll notice that this flock here is mixed hens and pullets, Robbins. Do you suppose I ought to get busy and separate them?

R. -- Absolutely, Art. It's a lot better to keep the hens and pullets separate. That's especially true when you plan to use the hens in the breeding pens next spring. You should feed the pullets more heavily than the yearling hens, also. Say, here's a soft-shelled egg laid in the litter. How come, Short?

S. -- Just going to ask you about that. I've noticed several lately. Maybe I'm not feeding enough oyster shell.

R. -- That may be the answer. But not necessarily. Generally, soft-shelled eggs are laid when there's a lack of calcium in the ration. Supply the hens with plenty of shell, green feed, and turn them out when the weather permits.

S. -- Sometimes these hens eat their own eggs. What's the remedy for that?

R. -- Well, sometimes that egg-eating habit can be broken by having the nests dark. Eating eggs is really a habit with hens, you know. And a bad one at that. Build the nest so the hens have to get into them from the rear. Have a door in the front of the nests which can be opened when you gather the eggs.

Are these germinated oats the hens are eating?

S. -- Yes, Robbins. I've found that my hens like them as well as oats with long sprouts -- if not better. I just soak the oats, keep them fairly warm for 3 or 4 days, and by that time the oats are just beginning to grow. Then I feed them to the hens. They surely do gobble them up. I'm also told that the oats have as much food value that way as they would if allowed to grow longer sprouts. As I said, the hens seem to like them better.

R. -- That's a good idea. I'll remember it.

S. -- And by the way, Robbins, -- some one told me that fowls need some hard grain to keep their gizzards from becoming flabby. They advised me to feed whole corn and to cut out the corn meal in the mash. How does that advice strike you?

R. -- Well, I hardly know. I couldn't say whether the feeding of hard grain will keep the hens' gizzards from getting flabby or not. All the food they eat is softened somewhat in the crop. I do know that the usual method of feeding hens for egg production during the winter is to give them a scratch ration of 2 parts corn to 1 part wheat, and 1 of good, plump oats. Also a dry mash which may contain anywhere from 30 to 60 per cent corn meal. Yellow corn should be used.

S. -- Why do you recommend yellow corn? What's wrong with the white?

R. -- Yellow corn contains considerably more of what scientists call vitamin A. Other than that, yellow and white corn contain about the same food value. Where hens get plenty of green feed -- such as that on an open range -- white corn is practically as good as the yellow variety. You see, the fowls get their vitamin A from the green feed then.

S. -- Pretty scientific, but I guess I understand, Robbins. I wonder if you can tell me a good commercial egg mash. Sometimes I think it would pay me to buy it, instead of mixing it up myself.

R. -- That's a matter of choice. A good laying mash may be made of equal parts, by weight, of bran, -- middlings, -- corn meal, -- meat scrap, -- and ground oats, with 1/4 part ground bone added. The ground bone and meat scrap supply enough mineral matter for good results. Feed plenty of oyster shell, or limestone grits, along with the mash. Keep the shell or grit before the chickens all the time.

Feed the mash in hoppers.

S. -- Where can I get plans for making home made feed hoppers? Want to make some myself.

R. -- The State agricultural experiment station probably has plans. Write in for them.

S. -- I'm wondering, Robbins, if the cracklings left after making lard wouldn't take the place of meat scrap in the poultry ration. I have a supply of cracklings at present and want to use it up.

R. -- They might take the place of the meat scrap in a pinch, Art. Pork cracklings aren't so desirable as meat scrap, but they do have consider-

able value as a high-protein feed. They don't keep so well as scrap, as a rule. They also have a high fat content. If it's found that their protein content is fairly high, the cracklings could be used in place of meat scrap, perhaps.

S. -- This pen of birds isn't any too vigorous, Robbins. I've noticed that their combs show the effects of frost already. Wonder if that's because the house is damp. Are frozen combs caused by dampness, rather than cold?

R. -- Generally frozen combs are a sign of either extreme cold, -- or low vitality in the birds. But dampness will increase the unfavorable effect of extreme cold on the birds, Short.

S. -- If I fed these birds cod-liver oil during the winter, I wonder if it would increase their vigor.

R. -- Well, there have been some very favorable reports on the good side of feeding cod-liver oil. They seem to show that the oil is particularly valuable in localities where there's little sunshine at some seasons of the year. When the hens are kept confined to the poultry house, it may be a good thing to add the oil to the laying ration, -- but it may be fed to all breeding stock during the fall, winter, and early spring. About 2 per cent cod-liver oil could be added to the mash, or 1 pint daily to every 400 hens. Feed it in the mash.

S. -- That strikes me as a good idea. And I'd like a little information on this, too. You'll notice that about half of the front of this house is in about equal proportions of glass and muslin. Should I keep both glass and muslin down during the cold nights, -- and when it's stormy?

R. -- I rather think it would be best to do that, Short. The muslin front should supply enough ventilation. This varies, however, with the number of hens kept in the house. A good way to check on whether you're ventilating properly is to go into the house early in the morning and notice the quality of the air then. If it's stuffy and close, -- or if moisture has gathered on the walls and ceiling, -- more ventilation is required.

S. -- They've got me worried about the health of my flock, Robbins. I heard the other day that sometimes as high as 70 per cent of the poultry flocks are infected with tuberculosis. Is that a fact?

R. -- I'm not sure about the exact percentage. But in some sections of the Corn Belt it's pretty well known that a large majority of the flocks are infected with tuberculosis. The infection might run as high as 70 per cent, in some localities. This disease does need attention, all right. It's possible for fowl tuberculosis to be transmitted to hogs.

S. -- Then chicken tuberculosis can be transmitted to hogs.

R. -- Oh, absolutely. The pigs get the disease through the infected droppings, and in other ways.

S. -- What are the symptoms of the disease in chickens?

R. -- Examinations of the chicken after it is dead may show a swollen liver, -- spleen studded with raised white or yellow spots. These are called nodules and they may be found in the intestines and other internal organs. The joints of the legs are sometimes affected and the hen may become lame.

S. -- How do the birds get the disease, Robbins?

R. -- By contact with diseased chickens, -- or infected flying birds, rats, mice, or tracked in on the feet of dogs or men coming from diseased places. The fowls swallow the germs and they infect the intestines and other organs. Owing to the slow progress of tuberculosis and scarcity of early symptoms, you don't generally recognize the disease until the flock has become pretty well infected. The diseased birds continue to scatter the bacteria in their droppings and spread them far and wide. Tuberculosis infects mostly grown birds.

S. -- Are folks in danger of getting the disease from chickens having it, by eating the eggs or the meat?

R. -- There's very little danger of getting tuberculosis by eating the eggs laid by infected hens, Short. Finding the germs in eggs is extremely rare. But you shouldn't eat the meat of infected birds, unless the infection is very slight, as in just a few places that can be cut away. In case you do use the meat of birds, diseased to any extent, cook it thoroughly. On general principles, Short, don't use it at all.

S. -- How can I know whether my own flock has tuberculosis, Robbins?

R. -- Get a good veterinarian to give the birds a thorough inspection and a tuberculin test. If they react, -- in other words, if they are infected, -- destroy all the infected fowls. Then clean up and disinfect the premises. A good disinfectant is cresol compound, 4 per cent.

Then don't restock for several months. Then restock only from healthy stock. Quarantine the new birds for 30 days. U. S. Department prints a bulletin that tells all about the disease. It is Farmers' Bulletin No. 1-2-0-0, and it's called "Tuberculosis of Fowls."

S. -- I have only one more question, Robbins. What can I do to

prevent bacillary white diarrhea?

R. -- Here's what you do: -- Have the hens' blood tested at your State agricultural college. If it reacts to the test, don't use the birds for breeding. In that way you'll eliminate the disease from your flock.

Then wipe off all eggs intended for incubation with a cloth wet with denatured alcohol. Disinfect in other ways. If you'll ask me that question a couple of months from now, -- when you're ready to start the incubators going, -- I'll advise you further.

Well, Short, I think things are looking pretty good around here. The place looks fine to me. On the whole, your birds seem healthy enough. That singing and cackling is a good sign. If each of those cackles means an egg, you'll have a nice haul by evening.

S. -- Thanks, Robbins. Good news straight from headquarters. Wish you'd tell Mr. Miller that.

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ANNOUNCEMENT: By this time we hope that most of our audience is aware of the fact that County Agent Robbins, who speaks for the U. S. Department of Agriculture, is answering the questions asked by the radio audience. We want you to continue submitting your questions, but in addition, why not pass along to your radio friends ideas and practices that you have found of value. If you will do your part, we'll have a special little department on the flash program, called the radio round table. Send your good ideas in and we'll pass them around the radio round table to our big family.

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PROGRAM NOON FARM FLASHES RELEASE Dec. 2

ANNOUNCEMENT

Today's Farm Flashes from the U. S. Department of Agriculture are of chief interest to growers of fruits and vegetables. The general farmer, as well as the town farmer, should, however, find most of these questions and answers of considerable interest.

Thurs. Dec. 2.

QUESTION: What is the Department's latest information regarding the trend of the apple market during the winter months?

ANSWER: Apple markets are dull without much change in price. But the outlook has improved a little the past two months for those who hold standard grades and varieties of long keeping apples. The early estimate of the market crop was cut down 8% in October. About 5% of the rest have been sent to foreign markets. Loss and injury by freezing, together with unusually close grading have resulted in reducing the market stock. Indications are that many good apples will not be harvested. Early apples are mostly out of the way. The weakest feature is the abundant local supply in the East where the market crop was one-fourth larger than it was last season. There were plenty of apples then. The best that can be said to encourage holders of apples is that not all the space in cold storage is filled. The price has sometimes advanced over winter, even in a season of heavy production, and may do so again if the supply is cut down severely enough from waste, injury and neglect and if the demand continues active.

Thurs. Dec. 2.

QUESTION: What is the Department's latest information regarding the trend of the potato market during the winter months?

ANSWER: The potato crop is 11% to 12% below average in quantity but good in quality. Shipments have been decreasing since the middle of October, but are still coming heavier than they were a year ago. City markets are full of potatoes. Prices have hesitated at $2.25 - $3.25 per 100 pounds which is more than $1 below the level in early November 1925, but two or three times higher than the prices of November 1924. There is no sign of a great potato boom such as prevailed in the late fall and early winter of last season. Less talk is heard this year of vast quantities of potatoes held in storage for speculation. But, in any event, the probabilities favor a price average lower than last season because of the estimated 7% larger production.

Thurs. Dec. 2.

QUESTION: I have my garden in a piece of land that formerly was a chicken yard. The land is black and rich, and yet some crops do not seem to do very well. Tomato vines grow rank but the yield is small. What is the cause?

ANSWER: The soil apparently is very rich in nitrogen but deficient in phosphoric acid and potash. The addition of acid phosphate and some potash fertilizer or the additon of a complete fertilizer low in nitrogen and high in phosphoric acid and potash should prove beneficial.

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QUESTION: My potted rose bush has something wrong with it. The stems and leaves are thick with small grayish bugs. What can I do for it?

ANSWER: Your rose bush is probably infested with an insect known as mealy bug, or it might be a scale insect. Thoroughly dissolve one pound of common laundry soap or fish oil soap in four gallons of hot water and spray the plants with or dip them in the solution while it is still lukewarm.

Thurs. Dec. 2.

QUESTION: Some people drive nails into fruit trees to make them bear. Is there anything to this practice?

ANSWER: The practice is sometimes followed with the idea that the trees need iron and that they can get it from the nails. Fruit trees need iron in minute quantities but it is so universally distributed in the soil that it is rarely, if ever, necessary to consider it in the use of fertilizers. Fruit trees are sometimes girdled to induce greater fruitfulness. A tree seriously injured, as when badly infested by borers, will sometimes set a very heavy crop of fruit, as though making a last effort to perpetuate itself before it dies. A fruit tree injured by nails being driven into it may be thrown into greater fruitfulness for a season, but it is due to an effect comparable with girdling, and not as a result of any iron which it gets from the nails.

QUESTION: I have only one apple tree and want several varieties of apples - can I graft three or four varieties on this tree --it is 10-years old?

ANSWER: Each branch of the tree may be grafted to another variety if that is desired.

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QUESTION: Is there any good spray which will protect apple, peach, and cherry trees against diseases which attack the trees in the Fall? When should such a spray be applied?

ANSWER: There are no diseases of any importance which attack apple, peach and cherry trees in the fall. After peach trees have become dormant, a spray of lime sulphur or Bordeaux mixture may be applied for the control of leaf curl, a disease which appears in the spring. The fall is a good time for cleaning up apple, peach and cherry orchards and applying general sanitary measures.

Thurs. Dec. 2.

QUESTION: I have trouble with my soil baking on the surface. What is the remedy? Would Lime be beneficial?

ANSWER: Lime would improve the texture of your soil, making it more mellow and porous. But where the soil bakes and packs badly lime alone is not sufficient. The soil needs organic matter also. This can be supplied by manure, compost or by plowing under green manure crops.

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QUESTION: To get the greatest benefit from manure should it be used as a mulch on top of the soil or should it be plowed under?

ANSWER: There is less loss of fertilizer ingredients, especially ammonia, if the manure is plowed under.

Thurs. Dec. 2.

QUESTION: "I have a young pear tree which has been run over and the bark badly skinned off on one side. Can this tree be saved and the bark made to cover the wound?

ANSWER: A tree injured as described will probably never outgrow the injury completely, yet the wound may heal perfectly in time. Several things can be done. The ragged edges of the bark about the wound should be trimmed off, cutting back to the area where the bark is uninjured. It is well to apply a disinfectant. Lime-sulphur solution may be used. It may be painted with pure white lead paint, made rather thick; or a coating of grafting wax may be applied if the wound is not too large. Grafting wax has some advantages over paint. Examined from time to time and kept in good condition. If the wound is very large, bridge grafting may be advisable. This is fully described and illustrated in Farmers' bulletin 1369 which will be sent free on request.

Thurs. Dec. 2

QUESTION: What is sun scald of fruit tree trunks? Does it injure trees and how can it be prevented?

ANSWER: Sun scald is a term usually applied to a form of injury to tree trunks and sometimes to the larger limbs. It shows itself in the splitting of the bark usually on the south or southwest side, followed very soon by its separating from the injured area and then curling back, finally dying and dropping off. It is usually the result of various combinations of extremes of temperature - severe freezing followed by rapid thawing or some other comparable conditions. Prevention is better than cure. The latter is difficult at best. Shading the south and southwest sides of the tree with boards, lath or in some other way, is effective. Whitewashing so the surface will reflect the sun's rays instead of absorbing them, may bring good results.

QUESTION: What is a spray ring?

ANSWER: It is a group of people who organize a club or ring to have their fruit trees or potatoes sprayed.

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QUESTION: What is the advantage of belonging to a spray ring?

ANSWER: If the spray ring is well handled the members get their spraying done at the right time. They do not need to buy individual spray outfits. They are relieved of the unpleasant job of spraying and they can do their other work without slighting the orchard. The spray ring is the salvation of the home orchard in many parts of the country.

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QUESTION: How much does it cost spray ring members per tree for the usual summer spraying?

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ANSWER: The cost varies from about 50 to 75 cents per tree on the average for a good sized bearing apple orchard.

Thurs. Dec. 2

QUESTION: How can a spray ring be organized?

ANSWER: Either the county agent or some one in the community should get the group together. The group then adopts a short constitution and by-laws and elects a president, vice-president and secretary-treasurer. These officers form the executive committee which usually has charge of hiring a man to do the spraying, of ordering all spray supplies, and of collecting dues and paying bills. Some rings buy a power sprayer and pro-rate the cost between the members according to the number of trees each one has, or just assess each one at a flat rate. Occasionally one member will buy the power sprayer and all supplies and charge the others a certain amount per tree for each spraying.

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QUESTION: How many people does it take to form a spray ring?

ANSWER: Eight or ten members are enough to form a good spray ring, although the number may vary from three to twenty. It is not desirable to have more than ten members because each spraying of trees or potatoes must be done within a few definite days for best results. It is essential that the members all live in the same neighborhood.

QUESTION: Can sweet cider be kept all winter by boiling and sealing it in jars? How is it done?

ANSWER: Sweet cider can be kept indefinitely by placing in jars of the easy-seal, or lightning-seal type. Put on the lids and clamp them down. Place in cold water in a wash boiler, preferably laying the jars on their sides, and bringing the temperature of the water up to 170°degrees F. For quart or half-gallon jars the temperature should be kept at this point for 15 minutes. For pint jars 10 minutes will be sufficient. Crown cap bottles may be used instead of jars if available, the caps being put on and clamped down before heating. This process, which is termed pastuerization, will destroy yeasts and spores of fungi present in the juice and will permit of its being kept as long as an air-tight seal is maintained.

Thurs. Dec. 2.

QUESTION: Is it true that the Japanese beetle seriously injures lawns? How may such injury be prevented?

ANSER: The grubs of the Japanese beetle feed on the roots of grasses, and are often very destructive in lawns and putting greens. The grubs can be destroyed by thorougly soaking the infested earth with carbon-disulfide emulsion, as indicated in Department of Agriculture Circular 363.

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ANNOUNCEMENT: This concludes the horticulture flashes from the U. S. Department of Agriculture. On Friday, as usual, we bring to you at this period, the Dairy Dialogue.

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PROGRAM FARM FLASHES (Dairy) RELEASE Fri. Dec. 3.

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ANNOUNCEMENT: This is our Dairy Farm Flash program. The customers of Mr. Dan Dibble complain that his milk has a bad odor and flavor lately. This means action for Mr. Dibble, and he's looking to his friend, County Agent Robbins, for information on the cause and remedy for the trouble. Mr. Robbins is the spokesman of the Bureau of Dairy Industry, U. S. Department of Agriculture, which is responsible for these Friday noon dairy farm flashes. Dibble is on Robbins' 'phone now.

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Dan Dibble -- Hope we can count on no one cutting in on us, Robbins. I'd like to ask some questions.

County Agent Robbins -- What's the difficulty, Dan?

D. -- Some of my milk customers complain that our milk has had a bad taste and odor lately. I don't think it's coming from the feed. How can I test milk from different cows to find the cause of the bad flavor? How soon after calving is the cow's milk likely to have an unpleasant taste?

R. -- Now let's get this straight, Dan. You say you're sure the feed isn't to blame for the objectionable flavor and odor in your milk.

D. -- Well, Robbins, I don't think it is.

R. -- Then the flavor and odor must come from bacteria in the milk or from the physical condition of the cow herself. If the milk has an unpleasant flavor and odor immediately after milking, you can be pretty sure it isn't caused by bacteria. Flavors caused by the action of bacteria in milk develop as the organisms grow and change certain of the milk constituents.

With most cows, it's best to have them dry at least 6 weeks before they calve. It varies with the cow, however. Objectionable odors and flavors in the milk differ according to the individuality of the cow. Sometimes cows give milk which is strong or bitter in taste, when they're far advanced in the lactation period.

Now, to find out which cows are responsible for the trouble, get a

number of small bottles. Wash and rinse them well. Then boil or steam them out. At milking time, place a sample of each cow's milk in a separate bottle. This milk may be tasted at the time of milking. Then let the bottles stand at room temperature for a few hours. Taste the milk again then. By this scheme, you'll be able to find the cow whose milk is to blame.

If you find out that the bad flavor develops only after the milk has been standing for a few hours, it's probable that the trouble's due to bacteria These may come from the udder of the cow or from dirty milk pails and other utensils. Sterilize all these buckets, etc., and cool the milk promptly to 50 degrees Fahrenheit or lower, after milking. That should solve your problem.

D -- That's what I wanted to know. I've heard, Robbins, that there seems to be a greater demand for milk in the cities than formerly. Is that so?

R. -- Well, they're using more milk generally, all over the country, and especially in those places where campaigns have been carried on to point out the food value of milk. The public has been informed concerning the value of milk in the diet and this is increasing the demand. People who know that milk is a health-giving food will use more.

D. -- That's so, Robbins. But, changing the subject: --- I've been wanting to ask you what is the best way to winter my dairy heifers. Can you tell me?

R. -- If the heifers are past the skimmilk age, the best way is to give them liberal supplies of roughage feeds and small allowances of grain. Corn silage and any one of the legume hays make first-rate roughage. Home-grown grains, such as ground corn, oats, or barley, -- or a mixture of these, -- are O. K. for the concentrate side of your ration. Each heifer should get 10 to 20 pounds of corn silage a day, in addition to all the legume hay she will clean up. She should also get from 2 to 4 pounds of the grain mixture every day. That's an economical and profitable way to carry the heifers thru winter.

D. -- That's fine! Just happens that I have those feeds on hand now, too. Yesterday I was arguing with a neighbor whether it's better to have cows freshen in fall or spring. Wonder if you can put us straight.

R. -- I can try to, Dan. The Bureau of Dairy Industry of the U. S. Department of Agriculture conducted a series of studies of cow-testing associations which show that fall freshening cows produce a larger quantity of milk and butterfat in a year than those freshening at other times in the year do. This is on the average, of course.

Fall freshening cows also return more money on the dollar spent for their feed.

But where you keep cows to supply whole milk markets, Dibble, your milk production must be uniform throughout the year. That means only part of your herd should be bred for fall freshening.

D. -- I believe you're right. I'd also like to know how to feed my calves the first week. Is there anything I can add to the milk they get to take the place of the fat taken out when the cream is separated?

R. -- Don't forget, Dibble, that all new-born calves should be let run with their mothers for at least 48 hours. This first milk called colostrum, is necessary to the calf's health. During the first week, 8 to 12 pounds of the mother's milk should be fed each calf daily. Give this 6 or 8 hours apart, never feeding more than 3 or 4 pounds to each calf at a feeding. You won't find it at all hard to teach the calves to drink from buckets. Then, about the second week allow them to start eating a grain mixture of 3 parts cracked corn, -- and 1 part wheat bran, to take the place of the butterfat in the separated milk. They won't eat much at first but will soon take a considerable amount.

D. -- How much skimmilk should I feed my calves? They have the appetite of trained seals.

R. -- Depends on how much skimmilk you've got. Good calves can be raised on a daily supply of not more than 1-1/2 gallons, but better calves will be produced on a supply of 2 or 2-1/2 gallons. Feed less to calves under 6 weeks of age.

D. -- If I join a cow-testing association, will it help solve my feeding problems?

R. -- It'll certainly help solve your dairy cow feeding problems, Dibble. About the biggest thing a cow-testing association does, is to give cow owners information regarding production, quantity of feed, and cost of feed per cow in their herds. When you know how much feed each of your cows eats, and how many pounds of milk she yields, you can figure out for yourself the best rations for that cow, can't you? Cow-testing associations supply you with those production and consumption records.

D. -- One of my neighbors is feeding corn-and-cob meal. He wants to know how much to feed. His cows also get good corn fodder and are let run in stalk pasture part of the time. These cows give about 3-1/2 gallons a day each. He asked me yesterday how I thought his method could be improved. I'm passing it on to you.

R. -- Your neighbor's ration isn't at all suitable for milk cows, Dan. It's low in variety and succulence and I judge his cows don't especially relish it. Further more it doesn't supply enough protein for milk production.

Stalk pasture has no particular value for cows in milk. Tell him he might as well take his cows off the stalk pasture so far as getting feed value out of those old, frozen, wind and water beaten stalks are concerned. For roughage, he could feed about equal amounts of corn fodder and alfalfa hay or some other legume hay, about as much as the cows will eat. Silage will also help. A good grain mixture would be 200 pounds of wheat bran and 100 pounds of cottonseed meal mixed with 400 pounds of his corn-and-cob meal. He should feel about 1 pound of this mixture for each 3 pints or pounds of milk the cows produce. On such a ration, his herd should show considerable improvement in milk production.

D. -- Here's an interesting thing, Robbins -- I've been feeding a ration made up of 2 parts ground corn and 1/2 part ground oats, along with alfalfa hay and corn silage. Well, I added 1/2 part of soy bean meal to the ration and at the same time cut down the quantity of grain and silage to a little more than one-half what I was feeding formerly. This not only greatly reduced my feed bill, but increased milk production as well. What about that change of ration?

R. -- Well, Dan, I hardly know. You must have increased the milk flow by adding the soy bean meal to the cows' ration. What I can't see is how you cut down so much on the grain and silage and at the same time increased milk yield. You'll probably find that the increased milk production is only temporary, -- that your cows were overfed before you added the soy bean meal, -- or that they are eating more hay at present to make up for the nourishment they lost when you cut down on the grain and silage.

D. -- May be, Robbins. Time will tell. But, by the way, is it better to cure soy beans for hay or put them in the silo with corn to be fed as silage?

R. -- If weather permits, it's cheaper and better to make hay out of the soy beans than to put them in the silo. If weather's unfavorable so the beans won't cure without great loss of leaves, it's better to make silage out of the beans and stalks. Cows need dry roughage along with their silage. Soy bean hay makes good roughage.

D. -- And speaking of silage, I've noticed that when the silo is filled it seals itself by the top layers heating and fermenting. There's a considerable waste of feed, Robbins. Wouldn't it be a good thing for me to start feeding immediately, from the top, in order to avoid this waste?

R. -- Some farmers start feeding silage immediately after the silo's filled, Dibble. If you feed off a sufficient quantity every day, this will lessen the usual waste from spoiled silage on the top. But cows don't relish silage still warm from fermentation. It won't hurt them, however. But never feed moldy silage, whatever you do.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

D. -- Wish you'd tell me what's the best mash to feed cows.

R. -- Do you mean a moist mash, Dibble? I wouldn't feed moist mashes to a cow except possibly just before or after calving, or when the cow is sick. A warm bran mash, -- or a mash composed of bran and ground oats, -- is the best for feeding at such times. The mash should never be sloppy and should be mixed fresh for each feeding.

D. -- I notice some of the neighbors are whitewashing their cow stables. Does that make it easier to keep the stable clean?

R. -- It certainly does. It's a good plan to whitewash the inside of your cow stable at least once a year. Whitewashing makes the stable much more attractive and cleaner as well. A number of good formulas for whitewash are found in Farmers' Bulletin No. 1-4-5-2. You can get a copy free by sending for it.

D. -- When I'm cooling milk, should I leave the covers off the cans?

R. -- No. Covers prevent dust and dirt getting into the milk. But you should stir the milk often while it's cooling.

D. -- I've got to get busy and build an icehouse. Where can I get plans for one, Robbins?

R. -- In Farmers' Bulletin No. 1078, issued by the U. S. Department of Agriculture.

D. -- I've been told that a calf that shows only four milk teeth is weak and not worth keeping. Is that correct?

R. -- Not necessarily, Dibble. In deciding whether to keep a calf or not, it's much better to find out if the calf has plenty of vigor and shows reasonable development. You should also see that the calf is free from deformities. I don't think I'd bother to count its teeth.

Say, perhaps we should ring off. Some one seems to want the line.

D. -- Another good idea, Robbins. I'll call again at this time next week.

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ANNOUNCEMENT: You've been listening to the Dairy Farm Flash program from Station ______, prepared by the U. S. Department of Agriculture. Again at this period Monday the program will be devoted to the interests of livestock.

UNITED STATES
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Radio Service

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PROGRAM "Farm Flashes (Livestock). RELEASE Mon. Dec.6

ANNOUNCEMENT: County Agent Robbins, is out at Mr. Todd's place this noon on the special invitation of that up-and-coming livestock man. Todd's busy getting his stock and equipment ready for winter and Robbins is again supplying information. The County Agent represents the U.S.Department of Agriculture, who sponsors these noon-time Farm Flashes broadcast through this station. Let's join them in their discussions.

Mr. Todd -- I'm going to have to whitewash this barn before I get through. How should I go about it? Want to disinfect the place, too.

County Agent Robbins -- You can make a good ordinary whitewash by slaking lime in water. Put the lime in a bucket or barrel -- then pour the water over it. Then cover the mixture up with a sack or a board and let it stand for an hour. If you haven't poured on water enough, the lime will be scorched. If there's too much water, the slaking will be held back. So be sure to get just the right quantity of water. Add more water if you need to, to make the lime the right thickness for putting on with a brush.

I have a copy of Farmers' Bulletin No. 1-4-5-2 up at my office. It tells a lot about whitewashing. I'll send it along, or you can send to Washington for it. A number of good systems of disinfecting barns are given in Farmers' Bulletin No. 9-5-4. You might send in for both at once, before you start work on the barn.

You certainly have a flock of English sparrows around here. They're flying in and out of the barn all the time.

T. -- You're right, Robbins. They eat my grain -- by the bushel. How can I get rid of them?

R. -- Poison 'em, Todd. Here's a method. Follow it mighty close. Mistakes are sometimes costly, when you get handling poison. Put one-eighth of an ounce of pulverized strychnine alkaloid into three-fourths of a gill of hot water. Add one and one-half teaspoonsful of starch or wheat flour, previously moistened with a few drops of cold water -- and heat the mixture. Stir constantly until the mixture thickens. Then pour the hot, moistened starch over 1 quart of wheat and stir until every wheat kernel is coated. A 2-quart fruit jar makes a good container to mix the paste and wheat in. You can shake this easily, and can also see through the glass and notice the condition of the wheat. Then spread the wheat thinly on a board until it dries. Use this for sparrow bait. If it isn't going to be used for some time, put it in a container, carefully label it, and keep it out of the hands of children and irresponsible persons.

T. -- Thanks for the information, Robbins. I've been wanting to get rid of these sparrows for some time. Now I'm going to. Here's another thing, I've treated my hogs for cholera, you remember. How soon after treating the

hogs, can I slaughter them and use their meat? I want to play safe.

R. -- There are two answers to that question. Hogs which have received the "serum alone" treatment may be slaughtered -- and their meat used safely -- any time after they receive the treatment. That is, if they are *otherwise healthy*. It's best not to slaughter hogs for food purposes for *at least 3 weeks* after they have received the simultaneous -- or serum and virus treatment. If the hog remains well for 3 weeks following the simultaneous treatment, there's no reason why its meat shouldn't be fit to use.

T. -- I see. Just wanted to make sure. Some of my hogs are mangy, Robbins. They don't seem to put on flesh as they should either. I haven't any dipping vat for them. Is there any other way I could treat them for mange?

R. -- Yes, indeed, Todd. Just spray on the mange preparation. Or use it as a wash. Of course you have to be careful to reach all parts of the body. Dipping is better than spraying, but you can successfully spray or wash the hogs with the mixture.

T. -- My neighbor told me that it isn't necessary to apply crude oil anywhere except behind the ears and similar places, when treating hogs for lice. Is that so, Robbins?

R. -- If you know the habits of hog lice, you'll know that they live on all parts of the hog's body and lay their eggs on the bristles of those parts. If you want to be sure, you'll apply the crude oil to all parts of the body. Your neighbor's wrong, Todd.

T. -- Well, maybe he's right in this. He also said that feeding buttermilk to pigs is a good way to rid them of worms.

R. -- So far as I know, Todd, there's no support for that belief. I don't see why the buttermilk would rid hogs or worms. I don't know of any experiments that prove this -- or disprove it, either -- for that matter. Until they find out about it for sure, it would be best to use the reliable worm treatments, I should think.

T. -- You've told me a number of times not to take chances with musty or moldy feed. Would it be safe to feed a lot of musty shelled corn to my hogs. The corn was heated to some extent. Later, the corn was turned. It's dry now, but still has a musty smell. What do you think?

R. -- I think you might use the corn, if you run it through a fan which will blow out a lot of the undesirable material. When corn has heated, it usually loses considerable of its feed value. Fanning wouldn't remedy that, but it *would* blow the fungus off, and make it more usable.

T. -- That sounds reasonable enough Robbins. Could I breed a number of young sows to their own sire and expect to get strong, healthy pigs?

R. -- You might -- but it's usually better not to. The experiences of those breeders who have done this tend to show that the pigs suffer a decline in health and vigor when close inbreeding is practiced. Breeding a sow to her sire is *very* close inbreeding.

T. -- Well, which is more profitable: -- To use gilts each year, and sell the sows after the pigs have been weaned, or keep the old sows and raise some pigs from older sows each year?

R. -- Ask me that sometime next year, Todd. They're carrying on a series of experiments to find out that very thing right now. It'll take some time to get the exact facts. Anyhow, it's an interesting problem.

T. -- Maybe you know about this, then. -- Some of my sows produce litters of only 2 or 3 pigs. The gilts don't do any better. What's wrong?

R. -- Probably a large number of the pigs die before they are born. A litter that may originally consist of 12 to 16 embryo pigs, may be farrowed as a litter of 6 or 7 pigs. You'll probably find the reasons for this high death rate in the care and management of the herd. Better care of your sows should increase the size of the litters.

But those small litters aren't so rare. About 6 per cent of all litters farrowed are 3 pigs or less.

T. -- Is that so? Well, I'm going to look into the matter on my place and see if better breeding, care, and feeding will bring more pigs.

R. -- As good a thing as any man can do, Todd. By the way, are you expecting a large lamb crop this year?

T. -- Fair. When's the best time in the Corn Belt to have the lambs arrive?

R. -- Most sheepmen consider from the first of March to the middle of April the best time for the lamb crop to come on. Farmers who are especially well prepared to take care of the lambs, may find it profitable to have the crop arrive a week or two earlier than that. I notice that some of the lambs you're breeding are thin, scouring, and about half as big as they should be. They're probably wormy.

T. -- I wish you'd tell me what to do about it, Robbins.

R. -- They ought to be treated for stomach worms and parasites. The worm treatments are fully described in Farmers' Bulletin No. 1-3-3-0. There are several good treatments. When they're on pasture, they ought to be turned on fresh grass.

T. -- Some of my sheep have catarrh right now. Is there any remedy for that?

R. -- Why yes, Todd. You can sponge out the nostrils, and spray them, with a 2 per cent solution of sheep dip. Then give the affected animals a tonic of 2 teaspoons each of carbonate of iron and gentian, twice a day. That'll put strength into them. The sheep should have shelter from the weather. Nasal catarrh is usually caused by exposure.

T. -- Is there any objection to feeding soy bean hay to breeding ewes and lambs?

R. -- No objection that I know of, Todd. Soy bean hay's an excellent feed.

T. -- Do you think that clover straw is as good as unthreshed clover for sheep?

R. -- Clover straw can be fed as part of the roughage allowance for your sheep. It's not so good as choice, leafy clover hay, though.

T. -- Wish you'd give me a good winter ration for my ewes, Robbins.

R. -- There's one kind of sheep feed that you shouldn't forget, and that's legume hay. It may be clover, alfalfa, soy bean, or cowpea hay, but it should be some legume hay. But if you can't get any of those legumes, 1/4 to 1/2 pound of cottonseed or linseed meal may be fed, along with corn stover and oat straw. Here's a ration that contains about the daily feed requirements for ewes weighing from 120 to 145 pounds: - 2 pounds alfalfa or cowpea hay, -- 2 pounds corn silage, -- and 1/2 pound shelled corn.

T. -- Say, Robbins, I lost 2 good 6-weeks' old calves since you were here last time. Feeding them skimmilk, right from the separator. They seemed to die from bloat. Could the foam on the milk cause the trouble?

R. -- I don't see how the foam could harm the calves. A lot of men around here believe it does, however. Probably you hadn't been feeding often enough and then overfed them. If you let young claves go a long time without milk, they drink too much of it when they get it. Bloating probably killed the calves.

T. -- That's what I figured, Robbins. I'll watch that next time. And say, I wish you'd tell me when I should begin working those 2-year-old and 3-year-old horses of mine.

R. -- A draft horse that is being broken to harness shouldn't be put to work until it's about 3 years old. It shouldn't be put on heavy work before it's 4 years old.

T. -- I've been hearing a lot lately that the mule is going to take the place of the horse before long. It's beginning to look that way to me, too.

R. -- Well, during the last few years, the number of horses in the U.S. has been decreasing and the number of mules increasing. This may be due to the fact that there has been a surplus of horses of undesirable types on the market -- a fall in horse prices as compared with other stock -- and the replacement of work horses in the cities and on the farm by trucks and automobiles. Mules have been increasing, especially in the South, and there seems to be a steady demand and a fairly high market price for mules in most parts of the country. But just now there's a good demand for draft, wagon, and saddle horses. Those types are selling at good prices.

T. -- That's good news, Robbins. About what does it cost to feed an average work horse a year, anyhow?

R. --- Oh, it depends on local conditions -- the kind and amount of work done by the horse -- the kind and cost of feeds -- the size and individuality of the horse fed -- and the way you manage him. The American Railway Express Company kept figures on the cost from 1917 to 1921. These figures show that the daily cost per horse was from $1.19 to $1.77. The Department of Agriculture made a survey of costs in the Corn Belt, based on the 1921 prices. These figures showed the daily cost of working a horse to be $1.37. The average quantity of feed eaten by a horse in a year, in this survey, was made up of 40 bushels of corn, 26 bushels of oats, 1.3 tons of hay, and 1.8 tons of straw and corn stover.

T. -- That mounts up, doesn't it, Robbins? And say -- Speaking of the nose bag let's stroll up toward headquarters.

ANNOUNCEMENT: That includes the livestock flashes, which come to you each Monday from the U. S. Department of Agriculture. We have two requests to make of our audience -- one is for your questions to be answered on any of the different phases of farming liscensed on the farm flashes during the week. The other is for your own experiences. Ideas you have picked up which are worth passing on. Please be good enough to contribute your bit to these programs.

UNITED STATES
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N.Y.

PROGRAM FARM FLASHES (Poultry) RELEASE Wed. Dec. 8.

ANNOUNCEMENT: Poultry Day again in Uncle Sam's Farm Radio Service schedule. Introducing a new friend to you today. He's Bob Kent, a friend of our friend, Art Short, -- and has just moved onto the old Dickson place down near the river. Mr. Kent plans to make his farm flock pay for their keep, and more. As he's new to the neighborhood, he invited County Agent Robbins out to look the ground over with him. Robbins is the regular spokesman of the U.S. Department of Agriculture and should be able to give Kent some profitable advice.

* * *

County Agent Robbins -- Well, Kent, we're mighty glad to welcome you to the neighborhood. And you've got a fine place here, too. Before Mr. Dickson moved to town he had one of the best farms in Fairfields here.

Bob Kent -- That's what I understand. Think I'm going to like it fine.

R. -- One thing you'd better watch out for, though, before you move your chickens into the houses.

K. -- What's that, Mr. Robbins?

R. -- Disease. I understand they had fowl cholera on this place not so very long ago.

K. -- H'mm. Don't like the sound of that. How can I clean up? Want to get my flock out here right soon.

R. -- I suggest that you clean out all the litter and droppings from the poultry houses and spread it on the fields or burn it. Then scrape the floors, dropping boards, walls, roosts, etc., clean. When that's done, take the nests down, -- empty them, -- and scrub 'em out. Clean and scald all feed hoppers and drinking fountains. Tear out and burn all rotten wood work. Then spray the chicken houses and all equipment with a good disinfectant. Cresol compound, U.S.P., in a 3 per cent solution is as good as you can get. Then either scrape the chicken runs to a depth of 4 inches, -- or plow them under and quicklime them.

K. -- That's straight from headquarters, evidently. I'll do it, Robbins. And say, -- I want to build some poultry fences. How high should they be?

R. -- Depends on the breed of chickens you keep. Fences from 5 to 6 feet high are about right for the general-purpose and meat breeds, such as the Rhode Island Reds, Plymouth Rocks, Wyandottes, etc. For the Leghorns, you'd better build the fences a foot or two higher. If I were you, I wouldn't put a board or wooden strip along the top of the fence. The hens seem to fly out more easily when you do that.

K. -- I see. Where we were before, the cats bothered the hens a lot. Maybe I won't have that trouble here, but I'd like to know what to do if I do.

R. -- It's unlikely that cats will give you any trouble around here, Kent. In town, about the best thing to do is to cover the yards with poultry netting. That is, if the yards aren't too big. Of course you could never do that on the farm, unless you confine your fowls to very small yards.

K. -- In building new houses, Robbins, would you advise me to build double walls and ceiling and then fill in the space with sawdust? I've heard that's a good idea.

R. -- I haven't seen it tried around here, Kent. I'd imagine that filling in the space between double walls of chicken coops in this section, would make a mighty comfortable home for rats, mice, and insect pests. If those pests got into those sawdust walls, they'd have the time of their lives preying on your poultry. And it would be awfully hard to get rid of them. Farmers' Bulletin No. 1-4-1-3 will give you a lot of good information on building poultry houses.

K. -- A friend of mine was asking me if there's anything wrong with using moldy or musty straw for scratching litter. He told me he'd heard it's a bad practice. What do you think about it, Robbins?

R. -- It's a dangerous practice, Kent. There's a fungus disease with a long name, that may effect your birds if they're allowed to scratch in moldy litter. The disease is caused by the common yellow or green mold often found on straw and other vegetable matter.

The disease attacks the lungs and air sacs of the chickens. You can prevent it by using only clean, bright straw and chaff and by keeping the houses clean.

K. -- I have a flock of about 150 pullets ready to move in as soon as I clean up. Would you advise me to keep them shut up, after they're once in the houses?

R. -- I would. At least when it gets cold and damp out-of-doors. In most parts of the U.S., egg production can be controlled better when the pullets are housed during the winter. It's all right to turn them out on bright days when the ground is dry.

K. -- I wish you'd give me a good ration for this flock of pullets, Robbins.

R. -- Well, that's not hard. Around here they're finding 2 parts cracked corn -- 1 part wheat -- and 1 part oats, a good scratch feed. Cut out the oats if they're light and poor in quality.

A good mash could be made of equal parts (by weight) of corn meal -- bran -- middlings -- ground oats -- and meat scrap. If you'll keep a good supply of milk before the birds all the time, you can cut out the meat scrap from the mash mixture.

Then you should supply the birds with green feed, oyster shell, and grit.

K. -- I've heard quite a bit about the Government laying mash. What is it made of, Mr. Robbins?

R. -- On the Government Experiment Farm, Beltsville, Maryland, they use a mash mixture made up of: corn meal -- crushed and sifted oats -- alfalfa meal -- middlings -- bran -- beef scrap -- fish meal -- dried milk -- steamed bone meal -- limestone -- and salt in different amounts. You can get the exact formula for mashes in the Farmers' Bulletin on "Feeding Hens for Egg Production". It would also pay you to write the state agricultural college for their laying mash formulas.

K. -- What do you think are the best vegetables to raise for winter green feed? Will raw beets, turnips, or potatoes take the place of winter green feed?

R. -- If you're raising vegetables for green feed, make it cabbages, Kent. Carrots are all right, too. Beets and turnips aren't so good, but make a fair succulent feed for the fowls.

Potatoes don't take the place of either cabbages or beets. If you feed them at all, feed them cooked. In that form, they have some food value for chickens.

K. -- Art Short tells me that he feeds alfalfa leaves softened with boiling water. Is this alfalfa a substitute for green feed?

R. -- Well, it's a fair substitute for green feed. You won't change the food value of alfalfa meal by adding water to it. But, if it doesn't take too much time and labor, it might pay to moisten the alfalfa before feeding it.

K. -- This house here is 16 times 26 feet. Could I keep 150 Rhode Island Reds in it, Robbins?

R. -- You could -- but it wouldn't pay. Reds need about 4 square feet of floor space per bird. In a house this size: about 400 feet square -- you should not have more than from 100 to 125 birds at the most. When you overcrowd your birds, it cuts down on their production, and adds to the chances of disease in the flock. Give the hens a fair chance. Especially during the winter months when they can't get outside much.

K. -- Why are eggs held in storage, Robbins?

R. -- For this reason, Kent: -- Hens produce more eggs in certain seasons than in others. It's an advantage, then, to keep eggs, laid during the fat months for use during the lean months. You can't make those eggs keep if you merely store them under ordinary conditions. To keep eggs from spoiling, drying out, or losing their value, it's necessary to keep them in a temperature of from 30 to 31 degrees. The germ doesn't develop at that temperature. Moist air prevents the egg from drying out. That's why eggs are stored, Kent.

K. -- I see. Economically, we store eggs to sort of equalize the supply and the price as much as possible. Is that it?

R. -- Yes, that's it, Kent.

K. -- What do you consider is the best system of packing eggs for shipment, Robbins? I think I'm going to have use for that information before long.

R. -- There's hardly a best method. The eggs should be packed in good, sound cases with new packing material of standard make. A good way is to use six excelsior pads to the case. One pad is placed on the bottom -- one on the top -- and one under the top filler of eggs. Flats are omitted where the pads are used. Some shippers use cups, cushions, or corrugated flats in place of the ordinary flats and the excelsior pads.

K. -- How do they grade the eggs commercially?

R, -- Eggs are graded according to quality, Kent. They find out the quality of the eggs by candling them -- in other words, they hold the egg up before a light in such a way that the light shines through the egg and lets the candler see the inside quality of the egg itself. This quality depends on the size of the air cell -- the visibility and movability of the yolk -- the condition of the white -- and the soundness and cleanness of the shell. Most markets have certain grades, such as Firsts, Extras, etc. Weight counts in the grading, of course. Lack of uniform egg grades and standards is a weakness in the poultry industry today, Kent.

K. -- I've often wondered, Robbins, if we're really making progress in breeding high-producing hens. Do the egg-laying contests show that we are?

R. -- Well, the egg-laying contests have taught poultrymen ONE BIG THING, at least. They have taught chicken men the importance of selecting their breeding pens more carefully, and all their birds, for that matter. For nine years, the International Egg-Laying Contest has been held at Storrs, Connecticut. Dr. Dunn has analyzed the results of these contests and found that poultrymen are learning to get rid of their poor-laying pullets and to keep the high-laying birds. The contest figures don't show any marked increase in the eggs produced by individual hens in the 9-year period.

K. -- But isn't it true that a hen has produced 1,400 eggs in a long-time record?

R. -- Well, the Indiana Experiment Station reports a 1,400-egg hen, although we don't have her exact record. Any record over 1,000 eggs for a hen is mighty high -- even if the record IS for a hen's lifetime.

K. -- It certainly is, Robbins. Wish I had a few of those 1,000-egg hens on this place. Wouldn't have to worrying about where the Christmas money is coming from, then.

And say, Robbins -- changing the subject a bit -- is it possible to tell if poultry have worms, by the general appearance of the birds?

R. -- I don't know of any CLEAR-CUT signs that you could go by, Kent. But if you have weak, emaciated, unthrifty, and unproductive birds in your flock it's a sign that worms may be present. You can get the most definite signs of worminess in the flock, by examining the parasites in the digestive tract of birds that die, or by killing one that is very thin and weak.

I don't know of any ONE treatment for all parasites. Treatment depends on the kind of worms present. A veterinarian could advise you on that matter.

K. -- Short's feeding cod-liver oil to his birds this winter. Are the cheaper grades of cod-liver oil as good for the hens as the more expensive grades?

R. -- It is best to buy good, standard grades of oil, Kent.

And buy it from reliable companies. Very cheap oil, or oil made from spoiled fish; is apt to be low in vitamins. While you should feed a tested grade of oil -- it might not be necessary to buy the high-priced product. Most poultrymen use medium grades of cod-liver oil which are sold for about half the price of the specially-tested laboratory oil.

K. -- By the way, Robbins, I notice that my neighbor is using artificial lights in his poultry houses. He's even using them in the breeding pens. I've been told that it's a bad practice to use the lights in the pens that are to be used for breeders in the spring. What about that?

R. -- I wouldn't use the lights on the breeders. Breeders should be given rest before the mating season starts. That helps to produce eggs with higher hatchability. The chicks are usually stronger, too. Using the lights tends to stimulate egg production during the winter months to such an extent that the chicks hatched in the spring may be weak.

Well, Kent, I'll have to be getting on. Several places I want to visit while I'm out this way. I'm mighty glad to see you here.

K. -- Mighty glad to be here, Robbins. And thanks for your help. Hope I haven't taken too much of your time.

R. -- Oh, not at all. So long.

K. -- Come out again soon, Robbins. So long.

ANNOUNCEMENT: And with that, the busy County Agent Robbins cranks his Ford and is off on his rounds. But he'll be with you again next Wednesday. If you have any questions you'd like answered, send them in to this Station and they'll be directed to Washington for answer by specialists in the thing you're interested in. There's absolutely no charge for this service. Tune in on the fruits and vegetables flashes to-morrow noon.

UNITED STATES
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PROGRAM Farm Flashes (Dairy) RELEASE Fri. Dec. 10.

ANNOUNCEMENT: Our dairymen friend, Dan Dibble, certainly must be making use of the information given him by County Agent Robbins. Dibble's back for more again today. Robbins, you'll remember, is the spokesman for the U. S. Department of Agriculture in Uncle Sam's noon-time Farm Flashes. Mr. Dibble's directing a rapid fire of feeding an management questions at Robbins and the County Agent is answering as best he can.

* * * * * **

('PHONE RINGS).

Mr. Dibble -- Hello, Robbins? This is Dibble. I had a letter from my brother, Bill, today.

County Agent Robbins --- That so, Dibble? Did Bill want to raise a loan?

D. -- No, indeed, Robbins. Bill's milking 20 cows now and wanted a bit of information from a man who can give it. (A-hem!)

R. -- Oh, I SEE.

D. -- You SEE Bill lives in a section where they can't grow corn very well. He wants to know if there's any economical winter dairy ration which doesn't include silage. What's the answer, Robbins?

R. -- So I'M the man that can give the information, eh? Well, tell your brother, Mr. Bill Dibble, who is out in the great cornless spaces, that he can raise and feed root crops such as mangles, beets, and rutabagas to take the place of silage in his winter dairy cow ration. As a rule, Dibble, most winter rations are more economical when silage or roots is fed. And, if Bill can't get silage, he can feed the roots. They furnish a palatable, succulent feed which aids digestion, tones up the system, and stimulates milk production. Sunflowers are sometimes used for silage in sections where corn cannot be grown.

D. -- Bill will be glad to hear that. He can grow root crops out there all right and also sunflowers.

I've been feeding my cows two large shovelfuls of silage a day, each. Is that enough?

R.--Hard to say. The right quantity of silage to feed depends on the quantity of other feed you're supplying your cows. If you're giving them a good grain mixture, at the rate of 1 pound for each 3 or 4 pounds of milk produced daily, you could feed 2 or 3 pounds of silage a day for each 100 pounds live weight of the cow. The right quantity of hay to feed along with the grain and silage would be 1 pound of hay for each 100 pounds live weight of the cow. If you're using a silage fork to measure out the silage fed, it's a good idea to weigh a forkful now and then to see about how the weight runs.

By the way, there's a good Farmers' Bulletin on silage. It's no.5-7-8, --called "Making and Feeding Silage".

D. -- Now, I want to aks you another question. I'm already feeding good quality alfalfa hay and silage. The cows seem to be producing all right. Would I gain by feeding grain in addition?

R. -- You certainly would. You're not feeding enough, Dan. Alfalfa and silage are splendid feeds, but I doubt that your cows will eat enough of them to meet their requirements under all conidtions. Feed your cows grain in addition to the hay and silage. No two cows produce alike. For that reason, the quantity of grain to feed each cow will depend on how much milk she gives. This will be shown by her regular production records.

D. -- If a cow is underfed, which will suffer: --- her body or her milk production?

R. -- Both. There's a special danger that her body will suffer during the early part of the lactation period when the tendency to give milk is strongest. Late in the lactation period, underfeeding causes a decided drop in the milk yield. That has a tendency to protect the body tissues, to some extent.

D. --- I understand. Do dairy cows need minerals, Robbins, to keep up their health?

R. -- They certainly do. Minerals can best be supplied by feeding carefully selected feeds. The ration should contain liberal quantities of properly cured legume hays which will furnish the calcium needed by the cow. Then, if the grain mixture includes a fairly large quantity of wheat bran, linseed-oil meal, or cottonseed meal, there should be no shortage of phosphorus. Keep salt before the cows all the time.

D. -- Oh, by the way. I forgot to ask you about this when I spoke of the letter from my brother. Since he has no succulent feeds for his cows this winter he wonders what would be a good ration without succulent feeds.

R. -- Tell him that it's hard to keep cows in full milk production during the winter months unless they get some succulent feeds. But if extreme care is used in feeding, it can be done. The cows should get all the hay they will eat each day. Some well-cured legume hay would be first choice. The legumes

include clover, alfalfa, soy bean, cow-pea, and other hays,

To balance the roughage feeds --- such as the hay, I mentioned --- tell your brother to feed home-grown grains along with purchased high-protein feeds. A good grain mixture would be 400 pounds of home-grown grains --- 200 pounds of high protein feeds -- and 100 pounds of wheat bran. The grain should be fed ground. Good grains to feed are corn, oats, barley, grain sorghums, or a combination of 2 or more of these. The high-protein feeds include cottonseed meal --- linseed-oil meal --- corn-gluten meal-- peanut meal -- soy bean meal -- and cocoanut meal.

D. -- Thanks, Robbins, -- I'll tell Bill that. What do you consider a good grain mixture to feed along with corn stover?

R. -- Dibble, I wouldn't make shredded corn stover the only roughage feed for dairy cows. But a ration to be fed along with corn stover ought to contain feeds that are rich in certain minerals in addition to other beeds of high nutritive value. You can supply the minerals best by turning the cows out on pasture in summer, and by feeding large quantities of good legume hays in winter.

At least half of your ration should be made up of good quality legume hay. I'd suggest a mixture of ground corn --- ground oats -- wheat bran -- and cottonseed meal, -- in equal parts by weight,-- for the concentrate part of the cows' menu. Feed the mixture at the rate of 1 pound daily for each 3 to 4 pounds of milk produced.

You could improve that ration a lot by adding silage or root crops.

D. --- Say, Robbins -- about what per cent of the feed they eat, can I expect my cows to return in milk?

R. -- That varies according to the ability of the cow to produce milk, Dan. Low producers return about 25 per cent, or under. High producers may return 40 per cent or more.

D. -- I see. And will a cow give poor quality milk if she gets poor quality feed?

R. --Cows have a tendency to produce milk of about the same chemical composition, regardless of how they are fed. If you feed the cows poorly --- of if you give them feeds that are low in something required to make a good milk flow --- they'll produce small quantities of milk, rather than milk of poor quality.

D. -- Well, that's interesting. Something I didn't know before, Robbins. I'm wondering if it will pay me to heat the drinking water to blood temperature during the winter. Will it save feed if I do?

R. -- It's doubtful if warming the water will save any feed, if you are al-

ready feeding your cows well. In cold weather, cows like warm water better than cold, and will drink more of it. That's a good point. Probably cows that are underfed and exposed in cold sheds, would benefit more by warm water than those well cared for.

D. -- Some of my cows will be fresh again soon now, Robbins. I want to know how to take care of them now so they'll give a good flow of milk when they do freshen.

R. -- I'd give each cow a dry period of 6 weeks at least. Then I'd feed the cow well so that she'll be in good flesh at calving time. This time of year, when the cows aren't on pasture to any extent, I'd feed each cow at least 10 pounds of legume hay a day -- along with silage or roots -- and a liberal grain supply that's fairly high in protein.

D. -- How soon after a cow calves, can I begin saving her milk?

R. -- That depends on the cow, Dibble. When the milk looks, feels, and tastes normal -- it's all right to use it. The swelling in the cow's udder should be watched. When the udder is about normal in size and inflammation reduced it's usually all right to save the milk. With most cows, the milk can be saved about 5 days after calving. Some cows need more time than this.

D. -- If you were out here now, you'd see a small bunch of heifers between 1 and 2 years old that I'm especially proud of, Robbins. I want to grow them out into record producers. What's the best way?

R. -- Keep 'em growing, Dibble. Keep 'em growing. Those heifers should develop normally. Feed them from 10 to 20 pounds of corn silage apiece a day, along with all the legume hay they'll eat. Then also feed each heifer from 2 to 4 pounds of some home-grown grain, such as corn, oats, or barley.

D. -- You said something about corn. Is it better to feed the heifers shelled corn or corn in the ear?

R. -- For heifers about the age of yours -- say, 2 years old-- I'd say ground corn's best, Dibble. Heifers might find some difficulty eating corn in the ear. Then, too, there's usually some waste when you feed heifers shelled or ear corn. Ear corn ground -- cob and all-- is all right for feeding.

D. -- Say, I have a vicious dairy bull out here, Robbins. He almost has ME buffaloed. How can I handle him safely?

R. -- Put him in a strongly built pen arranged so that you can feed him, and

clean the place out, without meeting up with him. These quarters ought to be made up of a specially planned pen, or shed, with a good-sized exercise lot. Build a feed alley in front of the pen so that you can feed him from the outside. Then have a strong gate which can be opened or closed from the outside, by means of ropes and pulleys. Other fixtures for the pen are described in Farmers' Bulletin No. 1-4-1-2; "Care and Management of Dairy Bulls". Why not send for it?

Of course the bull should be dehorned. Put a strong ring in his nose and always lead him with a staff.

D. -- He's so mean, I've been thinking it might be a good idea to sell him. But I guess I'll hang on to him. If you were buying dairy cows, Robbins, would you rely entirely on their butterfat test?

R. -- Absolutely not, Dan. I'd rely on the cow's health, age, soundness, size, disposition, length of teats, ease of milking, milk and butter fat records, and the conditions under which these records were made. I wouldn't forget the age at which these records were made, either.

D. --- There's a lot to it, then, eh? Wonder if you've got time to tell me something about the market situation, Robbins?

R. -- Well, I've got the time -- but I'm not so sure about the information. I'll do my best, Dibble.

D. --- I'd like to know how the price of milk products compares with last year.

R. -- They don't differ so much. Producers of milk for city trade received about the same prices for their products last month, that they got in November, 1925. Of course that's not true everywhere. In some sections of the country, heavy demand, light supply, surplus on hand -- and other things -- are operating to make higher or lower prices. I hear that prices are higher in some parts of New York State, New Jersey, and Pennsylvania. Wholesale butter prides have been rising steadily since last summer. In the middle of last month, wholesale butter prices were the equal of the November, 1925, prices. Cheese prices have also gained a slight lead over the 1925 marks.

D. -- Well, how can a creamery afford to sell butter at the same price per pound that it pays per pound for butter fat, Robbins?

R. --- Pure butterfat isn't butter, remember. One pound of butterfat may make nearly 1-1/4 pounds of butter. If the pound of butterfat costs the creamery 50 cents, and 1.23 pounds of butter are sold at 50 cents a pound, the creamery receives 61-1/2 cents for the butter made from one pound of butterfat. Do you see it, Dan?

D. -- I do, now. I've noticed that the butterfat content of my cows' milk changes from day to day and month to month. Why is that?

R. -- Now you're getting technical, Dibble. Well, the butterfat in the milk comes from the blood of the cow. The blood itself varies in fat content from day to day. Some of the fat may come from the blood without change. Any excitement of the cow, or change in her feed, may partly check her milk secretion. Milking is not always done at the same time and in the same way. That may have some influence.

D. -- Well, I guess it's time to ring off. Want you to come out again soon and look my herd over. You haven't been out for quite a while. And stop for dinner.

R. -- Thanks, Dibble. Good bye.

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ANNOUNCEMENT: That conludes Uncle Sam's dairy Farm Flash for today. Does Dibble's and Robbins' conversation leave you with any questions you'd like to ask? Send them in to this Station, or direct to the Radio Service of the U. S. Department of Agriculture, Washington, D. C. You'll receive an immediate answer. Look for the livestock Flashes next Monday noon.